2016 Seminar Series

Dr. Margaret M. Wiecek

Clemson University - Department of Mathematical Sciences

will present a seminar on

Robust Multiobjective Optimization for Decision Making under Uncertainty and Conflict

Many real-life problems in engineering, business, and management are characterized by multiple, conflicting objectives, as well as the presence of uncertainty. The conflicting criteria originate from various ways to assess system performance and the multiplicity of decision makers, while uncertainty results from inaccurate or unknown data due to imperfect models and measurements, lack of knowledge, and volatility of the global environment.

In this talk, the deterministic approaches to uncertainty that are integrated with multiobjective optimization to address decision making under uncertainty and conflict are discussed. The approaches are based on robust optimization and parametric optimization, both developed for single-objective settings. Six sources of uncertainty are presented, and each type of uncertainty is placed in the multiobjective optimization problem (MOP), yielding several types of uncertain MOPs (UMOPs). Some of the sources are adopted from earlier studies in (single-objective) engineering optimization, while the others result from the multiobjective optimization modus operandi. The UMOP models are classified first according to the location of the uncertainty in their formulation, second with respect to the undertaken optimization approach, and third on the basis of the proposed definition of robust efficient solutions. The models are presented along with the accompanying results on solution concepts, properties, methods, and applications that are specific to each case.

Monday, October 24th, 2016
132 Fluor Daniel Building (EIB) @ 3:00 PM

All are invited!